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ABSTRACT

The changes brought on by modern technology and the information explosion it supports are revolutionary. The manufacturing industry has always had a commitment to new processes and new technology. Investment in improving productivity through the application of technology is, however, new to the office. Provision of training has become a major issue for which companies are especially unprepared. Filling the enormous hiring requirements created by the growth of technology, especially with the rapidly changing demographics of the work force, is one of the real challenges of the future. Much of the special training required will be done at proprietary business and technical schools that have a long and successful record of responding quickly to demands of the local employment scene, implementing new technology quickly, and producing highly qualified graduates in the shortest amount of time possible. Such schools are characterized by a deep concern for student needs and success, a teaching staff with industry experience, individualized placement, and emphasis on hands-on training; their graduates need only a short on-the-job learning period. Students are attracted by flexibility in programs, courses, and starting times. Private business schools are in a good position to work with industry to provide qualified personnel. (YLB)

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NEW TECHNOLOGY DEMANDS NEW KINDS OF TRAINING

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"NEW TECHNOLOGY DEMANDS NEW KINDS OF TRAINING"

Modern technology has rapidly, overwhelmingly and convincingly entered our lives leaving its indelible imprint on everything we do. But the ultimate trends or directions followed by new technologies are always difficult to predict and the predictions are seldom accurate.

Mr. Alfred W. Pelletier, Chairman of the Board, Mack Trucks, Inc., made that point in a humorous, but poignant, fashion in a speech before the American Vocational Association on December 4, 1983, in Anaheim, California.

> "Technology tends to take off at unpredictable velocities and in unexpected directions. Even the most brilliant in their specialties often made grossly inaccurate predictions.
>
> "In 1925, R. E. Olds sold out his interest in the automotive industry, stating that 'the field holds no more interest for me because the motor car has reached the ultimate in design and technology, and I wish to look for new fields to conquer.'
>
> "Thomas Edison once remarked that no one would steal his phonograph because it had absolutely no commercial value.
>
> "Lee DeForest, the inventor of the vacuum tube and, more than anyone, the father of electronics, said in 1926 that he considered television to be technically feasible, but financially and commercially impossible.
>
> "These conservative prophets did not understand the self-energizing momentum of technology and its exponential spread."

Technology determines the way we shop, the way we make telephone calls, the way we do our banking and finally it dictates, in a much broader sense, what we need to know to function effectively in society today. Of even greater significance is the expanding application of technology in the office. The ability to secure employment and to advance within a corporation whose commitment to technology will play an important part in setting new criteria for career advancement will have far-reaching impact on the current and future office work force.

The changes brought on by technology and the information explosion it supports are travelling at light speed. Perhaps that particular reference to change is overworked and trite, but the unbelievable and all-encompassing impact of technology on the office and the traditional white-collar worker today numbs the mind.

As short a time as 20 years ago, change was somewhat predictable. It was an evolutionary process. Growth advanced at rates of 10 or 15 percent per year. Scientific breakthrough occurred in cycles of two, three or five years.

Today we experience change that is revolutionary. Growth rates of 100 or 200 percent per year are not uncommon and scientific change, innovation, applications and new product introduction are now a continuum.

This exponential growth in equipment and renewed commitment to productivity are happening in the factories as well as in the office. Investment in robots in 1982 was $190 million and is estimated to be $900 million in 1987 - a 400 percent increase in just five years. In the area of Computer Assisted Design (CAD) the investment is expected to grow to $9.8 billion by 1995 from $1 billion in 1983 - a tenfold increase in nearly as many years. But significant investment in the manufacturing sector of our economy is not unusual. There was always a commitment to new processes and new technology.

Investment in improving productivity through the application of technology was, however, new to the office. White-collar productivity was finally getting attention. Manufacturing and blue-collar work forces were diminishing. The economy was driving companies to more service-related pursuits resulting in white-collar work force growth. Many companies, with rising white-collar costs and lagging white-collar productivity, purchased and installed equipment often without a master plan in a feverish attempt to capitalize on the promised benefits.

Investment in new office products shot into the stratosphere, surprising even the vendors by the interest automated equipment generated. However, choosing equipment was a minor task compared to the human factors the new technology unleashed: jobs required redefinition, working relationships and management styles needed to change, and providing training became a major issue and one for which companies were especially unprepared. It became quickly apparent that equipment costs would be a small portion of a company's investment in productivity.

How did this happen? Where is it heading? How will industry address the problems? The first typewriter came along in 1867 and remained virtually unchanged for nearly 100 years except for the introduction of the electric typewriter shortly after World War II. In 1964 there was a major change. Secretaries were introduced to a new device that allowed them to store what they were typing. It was the IBM MT/ST (Magnetic Tape Selective Typewriter). In 1972, eight years later, Lexitron came out with the first video display unit allowing the secretary to see what she typed, edit it and store it for later use. The technology was a timesaver, but its use was limited because of high cost, marginal productivity gains and the extensive training necessary to become proficient.

In 1969 the microprocessor was born. Its ultimate destiny was not then clearly understood, but the microprocessor would soon change world economics, create millionaires by the score and give birth to dozens of new industries and thousands of new products. One of those new products was the word processor. By 1983, 600,000 units had been installed.

Another revolutionary product, the microcomputer, was also a result of the microprocessor. The growth in this area was even more formidable. In 1980, 750,000 microcomputers had been sold in the United States. In the next two years an additional 3.75 million units were purchased. Estimates are that 30 million units will be sold by 1985. What was once done by a room full of

equipment requiring special power, special air conditioning, special technicians and costing thousands of dollars a month, now sat on a desk, plugged into a wall socket and could be operated by the average office employee.

The micros have penetrated every facet of the modern business office. Micros do it all. They do word processing, data processing, spreadsheets and electronic mail. They access main computers and come with handles so you can take them home at night. And to make it all even more appealing and more incredible, the price keeps coming down while the power and capability goes up.

Micros are just a small part of the full array of new office technologies. Information utilities, facsimiles, optical character recognition, local area networks and video conferencing collectively represent new ways of doing business, new ways of thinking and new ways of utilizing people and machines more productively, more creatively and in a way in which the work becomes more meaningful and fulfilling.

And because the implementation of this technology forces job redefinition, new skills are the order of the day. Information processing, word processing and data processing, once separate functions, overlap and blend. Word processing centers give way to more versatile and productive utilization of the microcomputer and on-line terminal. Accounting functions are highly automated, copy machines can be programmed and mail can be delivered by robots. Private secretaries, once status symbols for executives, now work for several people, using microprocessors to electronically schedule, plan and make travel arrangements.

The need for a more productive work force, the attention to career paths for all employees, and the ever-flattening corporate pyramid bring a new sensitivity, a greater awareness and a greater commitment to the utilization and management of the company's greatest resource - its people, their training and their success.

Filling the enormous hiring requirements created by the growth of technology, especially with the rapidly changing demographics of the work force, is one of the real challenges in the '80s and beyond.

The Department of Labor Statistics predicts that 16.5 million women are expected to join the labor force during the '80s and that by 1990, 63 percent of all women of working age will be employed or actively looking for work. Because of the lower birthrates of the '60s and '70s, only 3.2 million men and women will turn 18 in 1992, 40 percent fewer than in the peak year of 1979. The impact of lower birthrates has yet to be felt, but fewer workers will create difficulties in filling all the jobs being created. Further, it is estimated that within three years, 5 million people, or 5 percent of the work force, will be working at home two or three days a week. We must add to that the fact that more people are working longer, not always out of financial need but out of psychological need.

The October 1983 edition of High Technology magazine states that 2 million unemployed will never be able to return to the industries where they once worked because of mergers which often resulted in the closing of duplicate facilities, and closings due to lack of demand, i.e. coal, autos, steel. By 1990 it is expected that the United States will have 10 million dislocated workers as a result of automation and technology. By the turn of the century, 86 percent of the work force will be gathering, processing and disseminating information or will be providing to each other all services related to information tasks. And it is estimated that 80 percent of all jobs created during this decade will not require four years of college, but will require some special training beyond high school.

America's ability to compete in the world marketplace begins with education - first in the high school and second with specialized education, whether it is a technical, business or vocational school or four-year college or university. But education and special training it is. And much of that special training will be done at proprietary business and technical schools. The September 19, 1983 edition of Fortune magazine states ". . .the promise of vocational education rests primarily in the technical institutes..." There are good reasons why that statement is accurate. Private business and technical schools have a long and successful track record of developing a product that the job market needs today.

While rapid, perhaps excessive, change has controlled the marketplace, traditional educational institutions have had difficulty adapting or revising their curriculums to keep pace. Private business and technical schools, however, are in a position to respond and produce results sooner. They are smaller (average enrollment 500). They are able to respond more quickly to the demands of the local employment scene. They are quick to implement the new technology fundamentally because the structure and decision-making process are those of a small business unencumbered by large boards, numerous committees and voting bodies. But more important, they are organized to produce a highly qualified graduate in the shortest amount of time possible. Their mission is specialized training for jobs. Once the need for training is determined the program is designed specifically to that need.

Private business schools have played an important part in America's educational history for nearly 150 years. In 1840, three years after the first Board of Education was appointed in Massachusetts and headed by Horace Mann, and long before widespread public education was part of our National fabric, America's first postsecondary business school, Duff's Iron City (now Duff's Business Institute), was founded in Pittsburgh, Pa. It's likely that the subjects taught then were simple and fundamental by today's standards, but it was private enterprise responding to need in the marketplace.

There are currently 37 accredited business schools in the United States that have been in continuous operation for over 100 years offering men and women comprehensive programs in accounting and secretarial training, and now - in keeping with the times - word processing, data processing and a myriad of other specialized career programs from medical office assisting to advanced

electronics. Nearly all of this training takes place in less than two academic years and much of it in one year or less. Many schools offer Associate or Baccalaureate degrees and have longstanding articulation programs with traditional colleges and universities for those students wishing to continue their education. But in all cases, programs are terminal by design with specific job placement as the objective.

Private education is characterized by an entrepreneurial spirit infused with high energy and a knack for innovation and creativity evidenced by its quick, positive response to the marketplace with program offerings directed to the changing technology and changing employer needs. There is also deep concern for student needs and their success in the program. And the student's needs are best served by a teaching staff who is seasoned with industry experience and know-how and who has a clear understanding of its mission and the school's. Finally, an on-going, individualized placement effort for all students and accountability for success are probably the single most important dimensions to the private business school.

Those qualities have significance and appeal to the student and to the potential employer. The student knows that the program will be short - usually less than two years (although there are four-year colleges among the ranks of the more than 8,000 private business and technical schools nationally). The training will be concentrated and focused in his primary area of interest. The student will use the equipment and procedures he will likely find in the job market. Classroom training will be immediately reinforced with plenty of hands-on training and a placement department will play an active role in properly directing him upon graduation.

Because hands-on training is an important part of all programs of study and because the instructors are committed to the relevancy of what is taught, there is less attrition as a result of failure, discouragement or loss of interest. These are two of the main reasons for the generally high completion and success rate for most schools. Furthermore, a favorable student/teacher ratio (usually 25 to 1 or better) allows student/teacher relationships to become meaningful and creates an atmosphere conducive to learning. Most schools offer some kind of tutoring program generally at no charge to the students. There are advisory programs of one form or another to allow students to make the transition to postsecondary training more easily. And there are strict attendance requirements. All this combines to produce a student with a high level of skill and a positive attitude about school and about work.

The main advantage for the employer is obvious - the recent graduate usually needs only a short learning period before becoming productive. In many cases the students will use similar or identical equipment or procedures and have a clear idea of what to anticipate when they are on the job.

The flexibility in programs, courses and starting times are other attractions for many students. Instead of traditional starting times of September and January, many schools have programs that start on short intervals of one, two or three months and may well include morning, afternoon and evening classes on a full-time or part-time basis. It means that the adult student who has other responsibilities or time commitments can find a school that has a schedule and a program to accommodate his needs. To the employer it means a continuous and predictable source of newly trained graduates who are available throughout the year. An employer faced with a need in February does not want to decide between hiring unplaced graduates from the previous spring or summer graduating classes or wait for the new graduating classes. Staggered graduating dates go a long way in alleviating part of that problem.

Additionally, most schools have special programs geared to specific audiences based on previous experience, education and sometimes age. Many courses are designed specifically for college graduates or college dropouts - courses that have been accelerated or significantly embellished in order to challenge the student as well as enable specific skills to be acquired in the shortest time possible. The working adult, the unemployed worker or the mother wishing to join the work force often have opportunities to join a class where they are with their peer group. This alleviates stress as well as enhances the learning process.

Finally, because placement is the only real measure of a school's success, private schools spend considerable time and energy preparing their students for the job market. Considerable instructional time is usually devoted to writing resumes, cover letters and refining the interviewing process. Many schools utilize mock interviews to simulate real-life experiences. Intern, extern or co-op programs frequently are part of the program in order to give students on-the-job experience prior to graduation. And all schools work very hard at the whole process because it's their success in placing their graduates that enables them to grow, enables them to establish their credibility in the business community, and enables them to recruit successfully for the following year. Placement rates exceeding 90 percent in the field for which students are trained are not unusual.

Technology is here, it is a force to reckon with and we have seen only the tip of the iceberg. It brings rapid change as a constant that must be faced by the company and its people. It creates a need for training and skill upgrading as at no other time in recent history. It is now and will continuously redefine job functions, management functions and people-managing skills.

This new paperless, information-filled society has an obvious impact on the business world and the way tasks are handled. The modern manager will spend much more of his time managing information than managing people. Instant access to records and information will enable the modern manager to review work, review files, send and receive electronic messages within the location in which he is working or across the country. He can create "what if" models with his microcomputer, review correspondence, dictate letters and

even produce rough drafts of those same letters - all of it without leaving his office.

The difficulty with employee training and the restructuring taking place in the office, at this stage of development, is that there are few master plans for solving the technology problems or the people problems. What has happened thus far has been fragmented and created by need. Training has been tailor-made, specific and done piecemeal by company, by department, by application. The real changes are yet to come.

The education community has its mandate - training and education for an ever diverse population in an ever changing, more complex world of sophisticated technology. It means a long, hard look at traditional methodologies and delivery systems. It means a greater responsiveness to real world needs and the flexibility and quickness to design and implement new curriculum in weeks or months instead of years. Where it was once the normal and accepted practice to develop a curriculum in a relative vacuum and then sell it to the marketplace, a new and closer alliance is being created between business and education. Industry will work closely with education to develop relevant training programs to fill their manpower needs, and the education community will be more creative in its methods and measure of accomplishment. Instruction methods must expand. Evaluation must encompass performance testing and problem solving, and credit and degrees must be granted for competence rather than course completion, for learning accomplished rather than time spent.

It is a new era and the challenges, as far-reaching as they are, will be eclipsed by the enormous opportunities created for both industry and the education community. And private business schools will be there to assume their role in providing to industry a source of qualified personnel.

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